5.1 AIR QUALITY

This section focuses on potential short-term air quality impacts associated with project construction activities and studies long-term local and regional air quality impacts associated with the project operation. Mitigation is recommended to avoid or lessen the significance of impacts.

Information in this section is based primarily on the Air Quality Data (California Air Resources Board [CARB] 2001 through 2005), the San Diego Air Pollution Control District (SDAPCD) *Regional Air Quality Strategy* (RAQS) (dated July 2004), and the Traffic Impact Analysis for the Ponto Beachfront Village Vision Plan (October 2006), prepared by RBF Consulting; refer to Appendix B for the assumptions used in this analysis.

5.1.1 Existing Conditions

The extent and severity of the air pollution problem in the San Diego Air Basin (Basin) is a function of the area's natural physical characteristics (weather and topography), as well as man-made influences (land development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of air pollutants throughout the Basin.

5.1.1.1 Climate

Basin Characteristics

The Basin is contiguous with San Diego County. One of the main determinants of Basin climatology is the Pacific High, a semi-permanent high-pressure center over the Pacific Ocean. In the summer, this pressure center is located well to the north, causing storm tracks to be directed north of California. This high-pressure cell maintains clear skies for much of the year. However, when the Pacific High moves southward during the winter, this pattern changes, and low-pressure storms are brought into the region, causing widespread precipitation.

Basin Climate

The climate of the Basin is characterized by warm, dry summers and mild, wet winters. The climate of Carlsbad, as with all of Southern California, is largely controlled by the strength and position of the Pacific High. This high-pressure ridge over the West Coast creates a repetitive pattern of frequent early morning cloudiness, hazy afternoon shine, clean daytime onshore breezes and little temperature change throughout the year. Limited rainfall occurs in winter when the oceanic high-pressure center is weakest and farthest south as the fringes of mid-latitude storms occasionally move through the area. The average temperatures in January range from 47 degrees Fahrenheit (ºF) at night to 63 ºF during the day. The warmest month is August, when the high temperatures average 74 ºF. The annual rainfall is approximately 10 inches.

Generation of Air Pollutants

The same atmospheric conditions that create a desirable living climate combine to limit the ability of the atmosphere to disperse the air pollution generated by the large population attracted to the pleasant climate. The onshore winds across the coastline diminish quickly

when they reach the foothill communities east of San Diego, and the sinking air within the offshore high-pressure system forms a massive temperature inversion that traps all the air pollutants near the ground. The resulting horizontal and vertical stagnation, in conjunction with ample sunshine, causes a number of reactive pollutants to undergo photochemical reactions and form smog, which degrades visibility and irritates the tear ducts and nasal membranes of humans. While programs to control emission air pollutants have substantially improved regional air quality within the last several decades, often parts of the Basin still do not meet clean air standards.

Local Climate

Local meteorological conditions in the project vicinity conform to the regional pattern of strong onshore winds by day (especially in summer) and weak offshore winds at night (particularly during the winter). These local wind patterns are driven by the temperature difference between the ocean and the warm interior topography. In summer, moderate breezes of 8 to 12 miles per hour blow onshore and up through the valley from the southwest by day. Light onshore breezes may continue throughout the night when the land remains warmer than the ocean. In winter, the onshore flow is weaker and the wind flow reverses to blow from the northeast in the evening as the land becomes cooler than the ocean.

Temperature Inversions

Both the onshore flow of marine air and the nocturnal winds are accompanied by two characteristic temperature inversion conditions that control the rate of air pollution dispersal throughout the Basin. Along the coastline, the marine air layer beneath the inversion cap is deep enough to accommodate any locally-generated emissions. However, as the layer moves inland, pollution sources (especially automobiles) add pollutants from below without any dilution from above through the inversion interface. When this polluted layer approaches foothill communities east of coastal developments, it becomes shallower and exposes residents in those areas to the concentrated by-products of coastal area sources.

5.1.1.2 Regulatory Framework

Regulatory oversight for air quality in the Basin rests with the San Diego Air Pollution Control District at the regional level, the California Air Resources Board at the State level, and the Environmental Protection Agency (EPA) Region IX office at the Federal level.

U.S. Environmental Protection Agency

The principal air quality regulatory mechanism on the Federal level is the Federal Clean Air Act (FCAA) and, in particular, the 1990 amendments to the FCAA and the National Ambient Air Quality Standards (NAAQS) that they established. These standards identify levels of air quality for "criteria" pollutants that are considered the maximum levels of ambient (background) air pollutants considered, with an adequate margin of safety, to protect the public health and welfare. The criteria pollutants are ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur oxides (SO_X), particulate matter less than 10 and 2.5 microns in diameter (PM_{10} and $PM_{2.5}$) and lead (Pb); refer to Table 5.1-1. The EPA also has regulatory and enforcement jurisdiction over emission sources beyond State waters (the outer continental shelf) and over sources that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking.

California Air Resources Board

The California Air Resources Board, a department of the California Environmental Protection Agency (CalEPA), oversees air quality planning and control throughout California. Its responsibility lies with ensuring implementation of the 1989 amendments to the California Clean Air Act (CCAA), responding to the FCAA requirements and regulating pollutant emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish California Ambient Air Quality Standards (CAAQS) and a legal mandate to achieve these standards by the earliest practicable date. These standards apply to the same criteria pollutants as does the FCAA, but also include sulfate, visibility, hydrogen sulfide, and vinyl chloride; refer to Table 5.1-1.

San Diego Air Pollution Control District

The CARB has designated San Diego County as a discrete air basin under the jurisdiction of the SDAPCD. In addressing its planning role with respect to national ambient air quality standards, the SDAPCD has most recently developed an Ozone Redesignation Request and Maintenance Plan, which served as the basis for the EPA redesignating the Basin as an attainment zone for the one-hour O_3 standard on July 28, 2003. The basis for that request was the demonstration that over a three-year period, the Basin had fewer than four instances of one-hour O_3 concentrations exceeding the 0.09 parts per million (ppm) threshold at any single monitoring station.

The SDAPCD developed the Regional Air Quality Strategy (RAQS) in 1991, which addressed state air quality planning requirements (focusing on ozone). The latest revision was published in July 2004. The SDAPCD is responsible for the overall development and implementation of the RAQS. The RAQS control measures focus on emission sources under the SDAPCD's authority, specifically, stationary emission sources and some area-wide sources. However, the emission inventories and emission projections in the RAQS reflect the impact of all emission sources and all control measures, including those under the jurisdiction of the CARB (e.g., on-road motor vehicles, off-road vehicles and equipment, and consumer products) and the EPA (e.g., aircraft, ships, trains, and pre-empted off-road equipment). Thus, while legal authority to control different pollution sources is separated, the SDAPCD is responsible for reflecting Federal, State, and local measures in a single plan to achieve ambient air quality standards in San Diego County.

City of Carlsbad General Plan Update Final Master EIR

The City of Carlsbad General Plan Update Final Master EIR identifies various air quality mitigation measures (which are also General Plan policies) to be applied to future land use planning phases and construction phases of development projects within the City of Carlsbad. These mitigation measures are derived from General Plan goals, policies, and objectives. The mitigation measures address six areas of concern related to air quality planning: 1) Planned Land Use Pattern; 2) Transportation Planning; 3) Alternate Modes of Transportation; 4) Regional Cooperation; 5) Energy Conservation; and 6) Construction-Related Impacts. General Plan Master EIR mitigation measures that will be implemented through project design and during construction of the proposed project are identified below. Given the project site location and constraints, project design and construction have

incorporated aspects of these measures as feasible. In addition, many of these measures are policy level measures designed to provide land use planning guidance for the entire City of Carlsbad, not just the proposed project.

A. Planned Land Use Pattern

Measure 1: Development applications should contribute to and extend existing systems of foot or bicycle paths, equestrian trails, and the greenbelts provided for in the Circulation, Parks and Recreation and Open Space Elements. (Land Use Element, Overall Land Use Pattern, C.7.5.)

Measure 2: Development should provide for safe, easy pedestrian and bicycle linkages to nearby community centers, parks, schools, points of interest, major transportation corridors, neighborhood commercial centers, and the proposed Carlsbad Trail System. (Combined from Land Use Element, Overall Land Use Pattern, C.7.7; Residential, C.12; Commercial C.2.e.)

Measure 3: Provide for a sufficient diversity of land uses so that schools, parks and recreational areas, churches and neighborhood shopping centers are available in close proximity to each resident of the City. (Land Use Element, Overall Land Use Pattern, C.6.)

Measure 4: Locate multi-family uses near commercial centers, employment centers, and major transportation corridors. (Land Use Element, Residential, C.6.)

Measure 7: Comprehensively design all commercial centers to be easily accessible by pedestrians, bicyclists, and automobiles to nearby residential developments. (Land Use Element, Commercial, C.3.)

B. Transportation Planning

Measure 19: Require new development to comply with the adopted (September 23, 1986) Growth Management performance standards for circulation facilities. (Circulation Element, Streets and Traffic Control, C.1.)

Measure 20: Minimize the number of access points to major and prime arterials to enhance the functioning of these streets as throughways. (Circulation Element, Streets and Traffic Control, C.4.)

Measure 21: Provide traffic control devices along all roadway segments and at intersections and interconnect and synchronize the operation of traffic signals along arterial streets, whenever feasible. (Circulation Element, Streets and Traffic Control, C.7 and C.11.)

Measure 23: Encourage the inclusion of onsite or nearby amenities such as day care facilities, dry cleaners and convenience stores within residential and industrial projects to reduce vehicular trips. (Circulation Element, Regional Circulation Considerations, C.2.)

C. Alternate Modes of Transportation

Measure 24: Encourage the construction of sidewalks along all public roadways with social emphasis given to collectors, arterials, and areas with high pedestrian traffic generators such as schools, commercial centers, transportation facilities,

public buildings, beaches and parks. (Circulation Element, Alternate Modes of Transportation, C.1.)

Measure 25: Encourage pedestrian circulation in commercial areas through the provision of convenient parking facilities, increased sidewalk width, pedestrian-orientated building design, landscaping, street lighting and street furniture. (Circulation Element, Alternate Mode of Transportation, C.2.)

Measure 26: Design pedestrian spaces and circulation in relationship to land uses and available parking for all new construction and redevelopment projects. (Circulation Element, Alternate Modes of Transportation, C.3.)

Measure 27: Link public sidewalks to the network of public and private trail systems. (Circulation Element, Alternate Modes of Transportation C.4.)

D. Energy Conservation

Measure 47: The City will continue to implement energy conservation measures in new housing development thorough State Building Code, Title 24 regulations, and solar orientation of major subdivisions through Title 20, Chapter 17 of the Municipal Code. (Housing Element, Program 5.1.)

E. Construction-Related Impacts

Measure 48: The City shall monitor all construction to ensure that proper steps are taken by developers to reduce short-term construction-related impacts to air resources. During clearing, grading, earth moving or excavation developers shall:

- Control fugitive dust by regular watering, paving construction roads, or other dust preventative measures;
- Maintain equipment engines in proper tune;
- Seed and water until vegetation cover is grown;
- Spread soil binders;
- Wet the area down, sufficient enough to form a crust on the surface with repeated soakings, as necessary, to maintain the crust and prevent dust picked up by the wind;
- Street sweeping, should silt be carried over to adjacent public thoroughfares;
- Use water trucks or sprinkler systems to keep all areas where vehicles move damp enough to prevent dust raised when leaving the site;
- Wet down areas in the late morning and after work is completed for the day; and,
- Use of low sulfur fuel (0.5% by weight) for construction equipment.

5.1.1.3 Monitored Air Quality

CARB sets State air quality standards and monitors ambient air quality at approximately 250 air-monitoring stations across the state. Air quality monitoring stations usually measure

pollutant concentrations 10 feet above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. Ambient air pollutant concentrations in the Basin are measured at ten air quality monitoring stations operated by the SDAPCD.

The Camp Pendleton Monitoring Station and the Escondido Monitoring Station were chosen to gather data for criteria pollutants. The data collected at these monitoring stations is representative of the air quality experienced onsite from 2001 through 2005; refer to Table 5.1-2. The following air quality information briefly describes the various types of criteria pollutants.

Ozone (O_3)

Ozone occurs in two layers of the atmosphere. The layer surrounding the earth's surface is the troposphere. The troposphere extends approximately 10 miles above ground level, where it meets the second layer, the stratosphere. The stratospheric layer (the "good" ozone layer) extends upward from about 10 to 30 miles and protects life on earth from the sun's harmful ultraviolet rays (UV-B).

"Bad" ozone is a photochemical pollutant, formed from the interaction of Volatile Organic Compounds (VOCs), NO_X, and sunlight; therefore, VOCs and NO_X are ozone precursors. VOCs and NO_X are emitted from various sources throughout the area. To reduce ozone concentrations, it is necessary to control the emissions of these ozone precursors. Significant ozone formation generally requires an adequate amount of precursors in the atmosphere and several hours of strong sunlight. High ozone concentrations can form over large regions when emissions from motor vehicles and stationary sources are carried hundreds of miles from their origins.

While ozone in the stratosphere protects the earth from harmful ultraviolet radiation, high concentrations of ground-level ozone can adversely affect the human respiratory system and other tissues. Many respiratory ailments, as well as cardiovascular disease, are aggravated by exposure to high ozone levels. Ozone also damages natural ecosystems (such as forests and foothill communities) and damages agricultural crops and some man-made materials (such as rubber, paint, and plastics). Societal costs from ozone damage include increased healthcare costs, the loss of human and animal life, accelerated replacement of industrial equipment, and reduced crop yields.

On April 15, 2004, EPA announced nonattainment designations for those areas that had exceeded the health-based standards for eight-hour ozone. These designations and classifications took effect for most areas on June 15, 2004. State, tribal and local governments must prepare a plan that describes efforts to reduce ground-level ozone. Transportation conformity requirements for the eight-hour standard (maximum allowable amount) for most areas were applicable on June 15, 2005. The one-hour Federal ozone standard was revoked with implementation of the eight-hour ozone designations. Additionally, State standards for the eight-hour ozone standard (0.07 ppm) were also recently adopted, in April 2005. The State standard for ozone is 0.09 ppm, averaged over one hour, and the Federal standard for ozone 0.08 ppm, averaged over eight hours.

The maximum eight-hour O_3 concentrations at the Camp Pendleton Monitoring Station ranged between 0.073 ppm and 0.098 ppm between years 2001 and 2005. The Federal Standard was exceeded once during this time period. The one-hour O_3 concentrations ranged

from 0.087 to 0.113 ppm between 2001 through 2005. The State standard was exceeded eight times between 2001 and 2005. The Basin is designated as a nonattainment area for eight-hour O_3 State and Federal standards.

Carbon Monoxide (CO)

CO is an odorless, colorless toxic gas that is emitted by mobile and stationary sources as a result of incomplete combustion of hydrocarbons or other carbon-based fuels. In cities, automobile exhaust can cause as much as 95 percent of all CO emissions. At high concentrations, CO can reduce the oxygen-carrying capacity of the blood and cause headaches, dizziness, unconsciousness, and death. Under both State and Federal standards, the Basin is classified as in attainment. No exceedances have occurred at the Escondido Monitoring Station over the last five years; refer to Table 5.1-2.

Nitrogen Dioxide (NO_2)

NO_X are a family of highly reactive gases that are a primary precursor to the formation of ground-level ozone, and react in the atmosphere to form acid rain. NO_X is a reddish-brown gas that can cause breathing difficulties at high levels. Peak readings of NO_X occur in areas that have a high concentration of combustion sources (e.g., motor vehicle engines, power plants, refineries, and other industrial operations).

NO_X can irritate and damage the lungs, and lower resistance to respiratory infections such as influenza. The health effects of short-term exposure are still unclear. However, continued or frequent exposure to NO_X concentrations that are typically much higher than those normally found in the ambient air may increase acute respiratory illnesses in children and increase the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_X may aggravate eyes and mucus membranes and cause pulmonary dysfunction. The Basin is designated as in attainment under State and Federal standards. State and Federal standards were not exceeded between 2001 and 2005.

Coarse Particulate Matter (PM_{10})

Coarse Particulate Matter (PM_{10}) is suspended particulate matter that is smaller than 10 microns (ten one-millionths of a meter). PM_{10} arises from sources such as road dust, diesel soot, combustion products, construction operations, and dust storms. PM_{10} scatters light and significantly reduces visibility. In addition, these particulates penetrate into lungs and can potentially damage the respiratory tract. On June 19, 2003, the CARB amended the Statewide 24-hour particulate matter standard to 50 micrograms per cubic meter ($\mu g/m^3$), based upon requirements set forth in the Children's Environmental Health Protection Act (Senate Bill 25). The Federal 24-hour standard of 150 µg/m3 was retained. The State standard for PM_{10} is 50 $\mu g/m^3$ averaged over 24 hours; this standard was exceeded six days between 2001 and 2005 at the Camp Pendleton Monitoring Station. The Federal standard was exceeded twice at the Camp Pendleton Monitoring Station between 2001 and 2005.

Fine Particulate Matter ($PM_{2.5}$)

Because of recent increased concerns over health impacts related to fine particulate matter (particulate matter 2.5 microns in diameter or less), both State and Federal $PM_{2.5}$ standards have been created. Particulate matter primarily affects infants, children, the elderly, and those with pre-existing cardiopulmonary disease. In 1997, the EPA announced new $PM_{2.5}$ standards; industry groups challenged the new standard in court and the implementation of

the standard was blocked. However, upon appeal by the EPA, the U.S. Supreme Court reversed this decision and upheld the EPA's new standards. The Federal Standard is 65 $\mu g/m^3$ over an average of 24 hours.

On June 20, 2002, the CARB adopted amendments for Statewide annual ambient particulate matter air quality standards. These standards were revised because of increasing concerns by the CARB that previous standards were inadequate, as almost everyone in California is exposed to levels at or above the current State standards during some parts of the year, and the Statewide potential for significant health impacts from particulate matter exposure was determined to be large and wide-ranging. Based upon a desire to set clean air goals throughout the State, the CARB created a new annual average standard for $PM_{2.5}$ at 12 µg/m3.

As indicated in Table 5.1-2, $PM_{2.5}$ levels have been exceeded twice between 2001 and 2005. The CARB issued a staff report that recommended that the Basin be designated as in nonattainment for State and Federal $PM_{2.5}$ standards. The EPA published the area designations and classifications for the $PM_{2.5}$ NAAQS in the Federal Register, and designated the Basin as an unclassifiable/attainment area.

Hydrocarbons (Reactive Organic Gases and Volatile Organic Compounds)

Hydrocarbons are organic gases that are formed solely of hydrogen and carbon. Two subsets of organic gases are reactive organic gases (ROGs) and volatile organic compounds (VOCs). ROGs and VOCs are emitted from the incomplete combustion of hydrocarbons or other carbon-based fuels. ROGs comprise all organic gases except those exempted by the CARB; therefore, ROGs are a set of organic gases based on State rules and regulations. VOCs are similar to ROGs in that they comprise all organic gases but they exclude those exempted by federal law; therefore, VOCs are a set of organic gases based on federal rules and regulations. The major sources of hydrocarbons are combustion engine exhaust, oil refineries, and oil-fueled power plants; other common sources are petroleum fuels, solvents, dry cleaning solutions, and paint (via evaporation).

The effects of hydrocarbons result from the formation of ozone and its related health effects. High levels of hydrocarbons in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons are considered toxic air contaminants ("air toxics"). There are no separate health standards for VOCs, although some VOCs are also toxic; an example is benzene, which is both a VOC and a carcinogen. VOCs were not measured at the Escondido or Camp Pendleton Monitoring Station during the past five years.

Toxic Air Contaminants (TACs)

According to Section 39655 of the California Health and Safety Code, a toxic air contaminant is "an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health." In addition, 189 substances that have been listed as Federal hazardous air pollutants (HAPs), pursuant to Section 7412 of Title 42 of the United States Code are TACs under the State's air toxics program pursuant to Section 39657 (b) of the California Health and Safety Code.

TACs can cause various cancers, depending on the particular chemicals, their type, and the duration of exposure. Additionally, some of the TACs may cause other health effects over the short or long term. The ten TACs posing the greatest health risk in California are acetaldehyde, benzene, 1-3 butadiene, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, perchlorethylene, and diesel particulate matter.

5.1.1.4 Sensitive Receptors

Sensitive populations are more susceptible to the effects of air pollution than is the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers and retirement homes. Sensitive receptors located within and adjacent to the project area generally include residential areas and parks.

The Ponto Area is surrounded primarily by residential homes to the north and east. To the south of the site is the Batiquitos Lagoon and to the west is the South Carlsbad State Beach. The nearest hospital to the Ponto Area is the Kaiser Permanente Medical Center, which is located approximately less than one-half mile north of the project. There are no additional sensitive receptors within the immediate area of the site.

5.1.2 Thresholds for Determining Significance

In accordance with CEQA, the effects of a project are evaluated to determine if they will result in a significant impact on the environment. The criteria (standards) used to determine the significance of impacts might vary depending on the nature of the project. Air quality impacts resulting from the implementation of the proposed project could be considered significant if they would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable Federal or State ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or,
- Create objectionable odors affecting a substantial number of people.

SDAPCD Thresholds

Per the SDAPCD, a project is significant if it generates total emissions (direct and indirect) that exceed their adopted thresholds; refer to Table 5.1-3. Note that the emission thresholds are given as a daily value and an annual value, so that a multi-phased project (such as a project with a construction phase and a separate operational phase) with phases shorter than one year can be compared to the daily value.

In addition, the significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below State and Federal CO standards. If the project causes an exceedance of either the state one-hour or eight-hour CO concentrations, the project would be considered to have a significant local impact. If ambient levels already exceed a State or Federal standard, then project emissions would be considered significant if they increase one-hour CO concentrations by 1.0 ppm or more, or eight-hour CO concentrations by 0.45 ppm or more; refer to Table 5.1-4.

5.1.2.1 Air Quality Modeling

URBEMIS 2002

This analysis of air quality impacts used the emission factors from URBEMIS 2002 for the construction (short-term) and operational (long-term) analyses. URBEMIS 2002 operational emissions address emissions from two separate sources: stationary area sources (e.g., emissions from space heating, lawn mowers) and mobile (vehicle) sources. These emissions are calculated for the project buildout period and take into account future vehicle fleet mixes and emission controls.

URBEMIS 2002 was developed to provide meaningful analysis of both short- and long-term impacts, and to encourage early development of mitigation measures during project planning. Discrete URBEMIS 2002 analysis is limited to annual periods. URBEMIS 2002 uses a simplified set of emission factors to estimate impacts separately for predetermined construction periods and for operational periods as independent events, and does not factor in small discrete periods of project overlap, incremental periods smaller than one year, individual buildout rates for each particular element of construction, scheduled utilization of individual pieces of construction equipment, pro-ration of occupancy, retrofit technology over the life of equipment, pollutant reactivity, or pollutant transport.

CALINE-4 Air Quality Model

CALINE-4 is an offsite consequence model used in conjunction with traffic related information. This program allows microscale CO concentrations to be estimated along each roadway corridor or near intersections. This model is designed to identify localized concentrations of carbon monoxide, often termed “hot spots.” Since the SDAPCD does not currently have guidelines on CO modeling, the South Coast Air Quality Management District (SCAQMD) guidelines were used. The SCAQMD requires that a CO hotspot analysis be performed if the results of the traffic study show a reduction in level of service to “E” or “F” or worsen an existing level of service to “C” or “D.” A hotspot analysis provides an estimate of localized concentration (i.e., micrograms per cubic meter) of CO related to mobile sources. This model is used for cumulative traffic related impacts.

5.1.3 Environmental Impacts

5.1.3.1 Short-Term (Construction) Impacts

Future construction of the proposed project site would generate short-term air quality impacts during grading and construction operations. The short-term air quality analysis considers the following temporary impacts from the project.

- Clearing, grading, excavating and using heavy equipment or trucks creating large quantities of fugitive dust, and thus PM_{10};
- Heavy equipment required for grading and construction generates and emits diesel exhaust emissions; and,
- The vehicles of commuting construction workers and trucks hauling equipment would generate and emit exhaust emissions.

As properties within the Ponto Area are all privately owned, development of the area would take place incrementally as individual property owners choose to undertake development or redevelopment of activities. A scheduled construction-phasing plan has not been established for the project. Actual construction quantities or plans have not yet been determined, and therefore, construction emissions were analyzed qualitatively.

Fugitive Dust and Construction Equipment Emissions

Federal, State, and local development standards and requirements designed to minimize air quality emissions would be implemented through standard development procedures. These measures typically include the following:

- Water exposed soils at least twice daily and maintain equipment and vehicle engines in good condition and in proper tune;
- Wash-off trucks leaving development sites;
- Replace ground cover on construction sites if it is determined that the site will be undisturbed for lengthy periods;
- Reduce speeds on unpaved roads to less than 15 miles per hour;
- Halt all grading and excavation operations when wind speeds exceed 25 miles per hour;
- Properly maintain diesel-powered onsite mobile equipment;
- Install particulate filters on off-road construction equipment;
- Sweep streets at the end of the day if substantial visible soil material is carried over to the adjacent streets; and,
- Cover all trucks hauling dirt, sand, soil or other loose material to and from the site.

Impacts AQ-1, AQ-2 and AQ-3 Fugitive dust is a major concern for areas in the Basin. Potential air quality impacts would result from clearing, grading, and earth moving operations (AQ-1); trucks hauling material on and offsite (AQ-2); and diesel particulate matter from construction equipment onsite (AQ-3). All future projects within the Ponto Area would be required to adhere Mitigation Measures AQ-1 and AQ-2, which include standard SDAPCD dust control measures and preventing excessive dust from construction vehicles that may need to use the public roadway system. Additionally, Mitigation Measure AQ-3 would serve to control diesel particulate matter impacts that may arise from the use of onsite heavy construction equipment. However, implementation of the Vision Plan would include considerable construction activities, which could potentially result in periodic exceedances of SDAPCD standards. As the Vision Plan establishes a vision of the

development anticipated to occur in the Ponto Area, but does not provide final development plans, it is not possible to quantify potential future impacts associated with fugitive dust. Therefore, based on the size of the Ponto Area, it is anticipated that impacts regarding fugitive dust from future construction activities would be significant and unavoidable.

Asbestos

The Ponto Area is primarily vacant except in the northern portion where the existing residential/commercial/small-scale industrial uses occur. As development of the Ponto Area occurs on individual land ownerships in the future, landowners may elect to demolish existing structures on their land to allow for redevelopment or new development. As structures constructed prior to 1980 are included within this neighborhood, such structures may contain friable asbestos, which has been identified as a hazardous airborne contaminant. Existing regulations would require demolition activities to minimize asbestos released into the air. Primarily, this is accomplished through the asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP). The EPA, through the CARB and the SDAPCD, enforces this NESHAP.

Impact AQ-4 The asbestos NESHAP specifies work practices to be followed during demolition of all structures that contain, or may contain asbestos (SDAPCD District Regulation XI, National Emissions Standards for Hazardous Air Pollutants). These work practices have been designed to effectively reduce airborne asbestos to safe levels. Development of the Ponto Area would be subject to the asbestos NESHAP, and would be required to comply with these specified work practices. Additionally, demolition activities would be subject to SDAPCD Rule 361.150 (Standards for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations). Consequently, airborne asbestos would not be generated in unhealthy amounts during demolition. However, as demolition activities could result in the potential exposure of sensitive receptors to the effects of asbestos, this would be considered a significant impact.

Reactive Organic Gas and Volatile Organic Compound Emissions

Impact AQ-5 In addition to gaseous and particulate emissions, the application of asphalt and surface coatings creates ROG emissions, which are ozone precursors. Future development within the Ponto Area would be required to adhere to the SDAPCD Rule 67.0, Architectural Coatings, which provides stipulations on painting and coating activities. Compliance with this standard would reduce impacts to less than significant. However, as future improvement activities would have the potential to expose sensitive receptors to pollutant concentrations, this would be considered a significant impact.

5.1.3.2 Long-Term (Operational) Impacts

For purposes of the air quality emissions analysis, operational-related air quality impacts were studied for 2030 buildout. Long-term air quality impacts would consist of mobile source emissions generated from project-related traffic and from stationary source emissions generated directly from natural gas. Emissions associated with each of these sources are discussed and calculated below.

Mobile Source Emissions

Based on the data used for the Traffic Impact Analysis, future development of the Ponto Area would potentially generate approximately 15,161 daily vehicle trips. Mobile source emissions arise from motor vehicles, including tailpipe and evaporative emissions. Project-generated vehicle emissions have been estimated using the URBEMIS 2002 computer model. This model predicts ROGs, CO, NO_X, SO_X, and PM_{10} emissions from motor vehicle traffic associated with new or modified land uses; refer to Appendix B for model input values used for the air quality analysis. Project trip generation rates were based on the Traffic Impact Analysis; refer to Section 5.6 and Appendix G.

Depending upon the pollutant being discussed, a potential air quality impact may be of either regional or local concern. For example, ROG, NO_X, SO_X, and PM_{10} are all pollutants of regional concern (NO_X and VOCs react with sunlight to form O_3 [photochemical smog], and wind currents readily transport SO_X and PM_{10}). CO tends to be a localized pollutant, dispersing rapidly at the source.

Area Source Emissions

Area source emissions were estimated using a variety of sources including the URBEMIS 2002 model, along with generally accepted emission factors for certain stationary sources. While previous versions of URBEMIS 2002 were designed to estimate emissions only from motor vehicle trips, the current version can estimate emissions from gas heaters, furnaces, and landscape maintenance equipment. The model accounts for specific meteorological conditions and topography that characterize each air basin in California. Electricity and natural gas are utilized by almost every residential development. As indicated in Table 5.1-5, area source emissions would not exceed established SDAPCD thresholds.

Total Project Operational Emissions: Area and Mobile Sources

Impact AQ-6 The total project operational emissions are described in terms of area source and mobile source (vehicle) emissions. As depicted in Table 5.1-5, Year 2030 Project Operational Emissions, regional level PM_{10} and ROG emissions would exceed the SDAPCD thresholds of significance. Therefore, future development of the Ponto Area would potentially result in significant and unavoidable impacts for long-term operations under buildout conditions.

Localized CO Hotspots

Carbon monoxide emissions are a function of vehicle idling time, meteorological conditions, and traffic flow. Under certain extreme meteorological conditions, CO concentrations near a congested roadway or intersection may reach unhealthy levels (i.e., adversely affect residents, school children, hospital patients, the elderly, etc.).

To identify CO hotspots, the SDAPCD follows the SCAQMD criterion, which requires an analyst to perform a CO microscale hotspot analysis when a project increases the volume-to-capacity ratio (also called the intersection capacity utilization) by 0.02 (two percent) for any intersection with an existing level of service (LOS) D or worse. Because traffic congestion is highest at intersections where vehicles queue and are subject to reduced speeds, these hot spots are typically produced at intersection locations. Per the Traffic Impact Analysis, full buildout of the Ponto Area would warrant a CO hotspot at the intersections provided in Table 5.1-6, Carbon Monoxide Levels at Surrounding Intersections.

The PM peak hour results in higher intersection capacity utilization (ICU) and was used in the modeling process. Future CO projections were modeled using the existing lane configurations and do not include the improvements discussed in the traffic analysis. The projected traffic volumes were then modeled using the CALINE4 dispersion model and the resultant values were added to an ambient concentration. The ambient concentration used in the modeling was the highest one-hour measurement from the past five years of SDAPCD. Actual future ambient CO levels may be lower due to emissions control strategies that would be implemented between now and the project buildout date.

As indicated in Table 5.1-6, the surrounding intersections would not result in exceedances of Federal or State CO standards. As indicated in Table 5.1-6, CO levels would be well below the State standard of 20 ppm for the one-hour Standards and 9 ppm for the eight-hour standards. Therefore, impacts associated with CO levels would be less than significant.

5.1.3.3 Plan Consistency

A potentially significant impact on air quality would occur if the project would conflict with or obstruct the implementation of the applicable air quality plan. Although the project would negatively impact air quality in the Basin, of primary concern is that project-related impacts have been properly anticipated in the regional air quality planning process and reduced whenever feasible. Therefore, it is necessary to assess the project's consistency with the SDAPCD *Regional Air Quality Strategy* (RAQS). Project consistency with the RAQS is determined in terms of whether the proposed project exceeds the criteria pollutant threshold levels established by the SDPACD and whether the proposed project would result in growth that has been anticipated in a given subregion.

Based on the operational emissions presented in Table 5.1-5, long-term operation of the proposed project would result in exceedances of the SDAPCD standards thresholds. In this regard, the proposed project would be considered inconsistent with the RAQS.

City of Carlsbad General Plan

The second criterion for establishing consistency with the RAQS is whether the project would be consistent with the population growth forecasts in the City of Carlsbad General Plan, as well as the traffic assumptions utilized by the SDAPCD. Based on the current General Plan, the proposed project is divided into six separate land uses:

- RMH (Residential Medium High – 8 to 15 dwelling units per acre);
- RMH/TR (Residential Medium High and/or Travel/Recreation Commercial);
- UA (Unplanned Area);
- OS (Open Space and Community Parks);
- TR/C (Travel/Recreation Commercial/Community Commercial); and,
- TR (Travel/Recreation Commercial).

Development of the Ponto Area would change the existing land use designations to a "Special Planning Considerations Area," to be developed under the guidance of the Ponto Beachfront Village Vision Plan. Future development proposals within the Ponto Area may be required to propose General Plan and Local Coastal Program land use reclassifications, as

well as city-wide and Local Coastal Program zone changes that would be evaluated as part of the discretionary approval process.

At present, there are three City zoning designations for the various parcels in the Ponto Area. These designations include: PC – Planned Community; CT-Q – Commercial Tourist zone with Qualified Development Overlay; RD-M-Q – Residential Density – Multiple zone with Qualified Development Overlay; and, CT-Q/RD-M-Q – a dual designation indicating that with further planning, one or both uses may be appropriate. No changes to the existing zoning are proposed with the project.

Table 5.1-7, Existing General Plan and Proposed Project Land Use Designations, includes the maximum trips associated with the current General Plan land use designation, as well as the trips associated with the development as proposed in the Vision Plan. As noted in Table 5.1-7, the proposed project would result in approximately 300 fewer trips than originally assumed in the General Plan. As the proposed project would result in fewer trips than originally projected in the General Plan, the trips associated with the project would be accounted for within SDAPCD's growth projections. Therefore, development of the Ponto Area as envisioned in the Vision Plan would be consistent with the growth projections for the City and the SDAPCD.

As part of the City's Growth Management Plan (GMP) and Chapter 21.90 of the City Zoning Ordinance, the City has been divided into 25 subareas, or zones, to ensure that services and facilities will be adequately provided for existing and future development. The GMP limits the number of residential building permits that can be issued throughout the City to a maximum of approximately 54,600 dwelling units at buildout. The Ponto Area is within the southwest quadrant of the City, which allows for a total of 12,859 dwelling units at buildout. This maximum number of units cannot be changed unless approved by public vote. The number of residential units anticipated with implementation of the Vision Plan would be consistent with the GMP.

San Diego Association of Governments (SANDAG)

The San Diego Association of Governments (SANDAG) has prepared the Regional Comprehensive Plan (RCP), which serves as the long-term planning framework for the San Diego region. It provides a broad context in which local and regional decisions can be made that move the region toward a sustainable future. The RCP contains an incentive-based approach to encourage and channel growth into existing and future urban areas and smart growth communities.

According to the SANDAG, a smart growth community would be a compact, efficient, and environmentally sensitive pattern of development that provides people with additional travel, housing, and employment choices by focusing future growth away from rural areas and closer to existing and planned job centers. Some principles of smart growth areas include reducing sprawl, encouraging using public transportation and walking, and providing jobs/housing balance.

As part of the RCP, SANDAG has prepared a Draft Smart Growth Concept Map, which contains almost 200 existing, planned, or potential smart growth locations. The map was circulated for review and comment at public workshops and city council presentations during April 2006, and accepted by the SANDAG Board of Directors for planning purposes for the

Regional Transportation Plan (RTP) in June 2006. The Ponto Area is included as part of the Smart Growth Concept Map. Therefore, development of the Ponto Area would be consistent with the anticipated growth within the San Diego region.

Consistency Determination

Although future development of the Ponto Area would exceed the SDAPCD's regional emissions threshold for ROGs and PM_{10}, development would be consistent with the San Diego Air Basin regional planning documents. Per consultation with the SDAPCD, a project is "regionally consistent" if it meets the planning assumptions and objectives contained within the City's General Plan, the RAQS, and the RCP.[1] It should also be noted that development of the Ponto Area, as envisioned in the Vision Plan, would result in approximately 300 fewer vehicle trips than was originally assumed in the City's General Plan. Therefore, development of the Ponto Area would be consistent with all applicable regional plans, and impacts would be less than significant.

5.1.4 Mitigation Measures

5.1.4.1 Short-Term (Construction) Impacts

AQ-1 During clearing, grading, earth-moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering or other dust preventive measures using the following procedures:

- On-site vehicle speed shall be limited to 15 miles per hour;
- All on-site construction roads with vehicle traffic shall be watered periodically;
- Streets adjacent to the Ponto Area shall be swept as needed to remove silt that may have accumulated from construction activities so as to prevent excessive amounts of dust;
- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day;
- All clearing, grading, earth-moving, or excavation activities shall cease during periods of high winds (i.e., greater than 35 miles per hour averaged over one hour) so as to prevent excessive amounts of dust;
- All material transported on-site or off-site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust;
- The area disturbed by clearing, grading, earth-moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust; and,
- These control techniques shall be indicated on project grading plans. Compliance with this measure shall be subject to periodic site inspections by the City of Carlsbad.

[1] Telephone conversation between Maria Cadiz, RBF Consulting, and Andy Hamilton, San Diego Air Pollution Control District, ARSD Division, October 11, 2006.

AQ-2 All trucks hauling excavated or graded material on-site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4), as amended, regarding the prevention of such material spilling onto public streets.

AQ-3 During construction activities, excessive construction equipment and vehicle exhaust emissions shall be controlled by implementing the following procedures:

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions;
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines;
- Encourage ride sharing and use of transit transportation for construction employees commuting to the project sites;
- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment; and,
- Curtail construction during periods of high ambient pollutant concentrations; this may include ceasing construction activity during the peak-hour of vehicular traffic on adjacent roadways.

AQ-4 The construction contractor shall adhere to SDAPCD District Rule 361.150 (Standards for Waste Disposal for Manufacturing, Fabricating, Demolition, Renovation, and Spraying Operations) to regulate asbestos emissions as a result of demolition activities.

AQ-5 The construction contractor shall adhere to SDAPCD District Rule 67.0 (Architectural Coatings) to limit volatile organic compounds from architectural coatings. This rules specifies architectural coatings storage, clean up and labeling requirements.

5.1.4.2 Long-Term (Operational) Impacts

AQ-6 Prior to approval of site development plans for future development within the Ponto Area, the City shall ensure that all of the operational mitigation measures identified below are identified and included as part of the project development plans, as applicable. These measures shall be implemented by the project applicant of each individual project when development plans are proposed, and shall be verified by the City of Carlsbad Planning Department.

- The City shall recommend that the proposed surrounding commercial facilities which incorporate gas stations utilize pumps dispensing oxygenated gasoline (especially during winter months, typically taken as November through February inclusive) in an effort to reduce overall CO emissions within the air basin due to traffic traveling to and from the project site. In addition, the City shall recommend that workers at surrounding commercial facilities participate in ride-share programs and seek alternate forms of transportation to the site.
- Future on-site commercial land uses shall implement design measures that promote the use of alternative modes of transportation, such as:
  - Mixed-use development (combine residential, retail, employment, and commercial).

  - Sidewalks; safe street and parking lot crossings; showers and locker rooms; sheltered transit stops; theft-proof well-lighted bicycle storage facilities with convenient access to building entrance; carpools and vanpools.
  - Onsite services to reduce need for offsite travel such as: childcare; telecommute center; retail stores; postal machines; and automatic teller machines.
  - Commercial and retail businesses shall schedule operations during off-peak travel times; adjust business hours; and allow alternative work schedules, telecommuting.
  - Provide preferential parking for carpool/vanpool vehicles.
  - Construct transit facilities such as bus turnouts/bus bulbs, benches, shelters, etc.
  - Provide direct, safe, attractive pedestrian access from project to transit stops and adjacent development.
- Increase walls and attic insulation beyond Title 24 requirements.
- Plant shade trees in surface parking lots to reduce evaporative emissions from parked vehicles.
- Use lighting controls and energy-efficient interior lighting, and built-in energy efficient appliances.
- Use double-paned windows.
- Use energy-efficient low sodium parking lot and streetlights.

5.1.4.3 Plan Consistency

No mitigation measures are recommended.

5.1.5 Impact After Mitigation

The following air quality impacts remain significant and unavoidable following implementation of the recommended mitigation measures:

- Construction Emissions;
- Long-Term Operational Emissions;
- Cumulative Construction Emissions (refer to Section 7.1.2.1); and,
- Cumulative Long-Term Impacts (refer to Section 7.1.2.2).

Mitigation measures AQ-1 through AQ-6 will reduce potential air quality impacts to the maximum extent possible. These mitigation measures outline specific steps to mitigate air quality impacts during the construction and operations phases of the project; however, impacts associated with ROG and PM_{10} would remain significant and unavoidable.

Table 5.1-1
National and California Ambient Air Quality Standards

Pollutant	Averaging Time	California[1]		Federal[2]	
		Standard[3]	Attainment Status	Standards[4]	Attainment Status
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	**Nonattainment**	NA[5]	NA[5]
	8 Hours	0.07 (137 µg/m^3)	**Nonattainment**	0.08 ppm (157 µg/m^3)	**Nonattainment**
Particulate Matter (PM_{10})	24 Hours	50 µg/m^3	**Nonattainment**	150 µg/m^3	Unclassified
	Annual Arithmetic Mean	20 µg/m^3	**Nonattainment**	50 µg/m^3	Unclassified
Fine Particulate Matter ($PM_{2.5}$)	24 Hours	No Separate Standard		65 µg/m^3	Attainment
	Annual Arithmetic Mean	12 µg/m^3	Attainment	15 µg/m^3	Attainment
Carbon Monoxide (CO)	8 Hours	9.0 ppm µg/m^3	Attainment	9 ppm (10 µg/m^3)	Attainment
	1 Hour	20 ppm (23µg/m^3)	Attainment	35 ppm (40 µg/m^3)	Attainment
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	NA	NA	0.053 ppm (100 µg/m^3)	Attainment
	1 Hour	0.25 ppm (470 µg/m^3)	Attainment	NA	NA
Lead (Pb)	30 days average	1.5 µg/m^3	Attainment	NA	NA
	Calendar Quarter	NA	NA	1.5 µg/m^3	Attainment
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	NA	NA	0.030 ppm (80 µg/m^3)	Attainment
	24 Hours	0.04 ppm (105 µg/m^3)	Attainment	0.14 ppm (365 µg/m^3)	Attainment
	3 Hours	NA	NA	NA	Attainment
	1 Hour	0.25 µg/m^3	Attainment	NA	NA
Visibility-Reducing Particles	8 Hours (10 a.m. to 6 p.m., PST)	Extinction coefficient = 0.23 km@<70% RH	Unclassified	**No Federal Standards**	
Sulfates	24 Hour	25 µg/m^3	Attainment		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Unclassified		

µg/m^3 = micrograms per cubic meter; ppm = parts per million; km = kilometer(s); RH = relative humidity; PST = Pacific Standard Time; NA = Not Applicable

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM_{10}, and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations. In 1990, the CARB identified vinyl chloride as a Toxic Air Contaminant and determined that there was not sufficient available scientific evidence to support the identification of a threshold exposure level. This action allows the implementation of health-protective control measures at levels below the 0.010 ppm ambient concentration specified in the 1978 standard.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. EPA also may designate an area as *attainment/unclassifiable* if (1) monitored air quality data show that the area has not violated the ozone standard over a three-year period; or (2) there is not enough information to determine the air quality in the area. For PM_{10}, the 24-hour standard is attained when 99 percent of the daily concentrations, averaged over the three years, are equal to or less than the standard. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
3. Concentration is expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health.
5. The Federal 1-hour ozone standard was revoked on June 15, 2005.

Source: California Air Resources Board and U.S. Environmental Protection Agency, 2005.

Table 5.1-2
Local Ambient Air Quality

Pollutant	Standard (Maximum Allowable Amount)		Year	Maximum Concentration	Number of Days State/Federal Std. Exceeded
	California	Federal Primary			
Carbon Monoxide (CO)	9.0 ppm for 8 hour	9.0 ppm for 8 hour	2001[1] 2002[1] 2003[1] 2004[1] 2005[1]	5.11 ppm 3.85 10.64 3.61 2.79	0/0 0/0 0/0 0/0 0/0
Ozone (O_3) (8 Hours)	0.07 ppm for 8 hours	0.08 ppm for 8 hours	2001[2] 2002[2] 2003[2] 2004[2] 2005[1]	0.098 ppm 0.073 0.084 0.095 0.074	NA/1 NA/0 NA/0 NA/2 NA/0
Ozone (O_3) (Hourly)	0.09 ppm for 1 hour	NA	2001[2] 2002[2] 2003[2] 2004[2] 2005[2]	0.113 ppm 0.087 0.099 0.110 0.090	0/NA 0/NA 4/NA 4/NA 0/NA
Nitrogen Dioxide (NO_2)	0.25 ppm for 1 hour	0.053 ppm annual average	2001[2] 2002[2] 2003[2] 2004[2] 2005[2]	0.092 ppm 0.109 0.095 0.099 0.077	0/NA 0/NA 0/NA 0/NA 0/NA
Coarse Particulate Matter (PM_{10})[3,4]	50 µg/m^3 for 24 hours	150 µg/m^3 for 24 hours	2001[1] 2002[1] 2003[1] 2004[1] 2005[1]	72.0µg/m^3 50.0 179.0 58.0 42.0	2/0 0/0 5/1 0/1 0/0
Fine Particulate Matter ($PM_{2.5}$)[4]	No Separate State Standard	65 µg/m^3 for 24 hours	2001[1] 2002[1] 2003[1] 2004[1] 2005[1]	60.0µg/m^3 53.6 69.2 67.3 43.1	0/0 0/0 1/1 1/1 1/0

ppm = parts per million; PM_{10} = particulate matter 10 microns in diameter or less; NA = not applicable; µg/m^3 = micrograms per cubic meter; $PM_{2.5}$ = particulate matter 2.5 microns in diameter or less

1. Air quality data was taken from the Escondido Monitoring Station.

2. Air quality data was taken from the Camp Pendleton Monitoring Station.

3. PM_{10} exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.

4. PM_{10} $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

Source: California Air Resources Board, *Aerometric Data Analysis and Management (ADAM) Air Quality Data Statistics*, http://www.arb.ca.gov/adam/welcome.html

Table 5.1-3
Pollutant Thresholds Per SDAPCD

Pollutant	SDAPCD Thresholds (lbs/day)	SDAPCD Thresholds (tons/year)
Carbon Monoxide (CO)	550	100
Oxides of Sulfur (SO_x)	250	50
Volatile Organic Compounds (VOCs)	55(1)	NA
Oxides of Nitrogen (NO_x)	250	50
Particulate Matter (PM_{10})	100	15

Note: VOC thresholds based upon San Diego Air Pollution Control District levels per SDAPCD requirements (September, 2001).
Source: SDAPCD Rule 1501, 20.2(d)(2), 1995.

Table 5.1-4
Federal and State Carbon Monoxide Standards

Jurisdiction	Averaging Time	CO Standard
Federal	1 Hour	35 ppm
	8 Hour	9 ppm
State	1 Hour	20 ppm
	8 Hour	9 ppm

Notes: ppm = parts per million
Source: California Air Resources Board.

Table 5.1-5
Year 2030 Project Operational Emissions

Source Categories	Specific Sources and Activities	Emissions (lbs/day)[1]				
		ROG	**NO_x**	**PM_{10}**	**CO**	**SO_x**
Area Source	Natural gas combustion, landscape maintenance	26.36	11.46	0.04	15.26	0.00
Mobile Source	Project-related motor vehicle trips	29.73	29.78	173.86	354.16	1.00
	Totals	56.09	41.24	173.90	354.16	1.00
SDAPCD Significance Criteria		**55**	**250**	**100**	**550**	**250**
Significant?		**Yes**	**No**	**Yes**	**No**	**No**

1 - Refer to the worksheets in Appendix D of Appendix B for detailed assumptions.

Table 5.1-6
Carbon Monoxide Levels at Surrounding Intersections

Intersection	1-Hour CO (ppm)		8-Hour CO (ppm) [3]	
	1-Hour Standard[2]	Future + Project	8-Hour Standard[3]	Future + Project
Palomar Airport Road at Avenida Encinas	20 ppm	6.0	9 ppm	4.20
Palomar Airport Rd. at I-5 Northbound Ramps	20 ppm	6.0	9 ppm	4.20
Palomar Airport Road at Paseo del Norte	20 ppm	6.1	9 ppm	4.27
Palomar Airport Road at Armada	20 ppm	6.1	9 ppm	4.27
Palomar Airport Rd. at Aviara Pky/College Blvd.	20 ppm	6.1	9 ppm	4.27
Palomar Airport Road at El Camino Real	20 ppm	6.1	9 ppm	4.27
Palomar Airport Road at El Fuerta Street	20 ppm	6.1	9 ppm	4.27
Palomar Airport Road at Melrose	20 ppm	6.1	9 ppm	4.27
Poinsettia Lane at Carlsbad Blvd.	20 ppm	6.0	9 ppm	4.20
Poinsettia Lane at Avenida Encinas	20 ppm	5.9	9 ppm	4.13
Poinsettia Lane at I-5 Southbound Ramps	20 ppm	6.0	9 ppm	4.20
Poinsettia Lane at I-5 Northbound Ramps	20 ppm	6.0	9 ppm	4.20
Poinsettia Lane at Paseo Del Norte	20 ppm	6.0	9 ppm	4.20
Poinsettia Lane at Aviara Parkway	20 ppm	6.0	9 ppm	4.20
El Camino Real at Camino Vida Roble	20 ppm	6.0	9 ppm	4.20
La Costa Ave. at Carlsbad Blvd.	20 ppm	6.1	9 ppm	4.27
La Costa Ave. at Vulcan Ave.	20 ppm	6.0	9 ppm	4.20
La Costa Ave. El Camino Real	20 ppm	6.2	9 ppm	4.27
Leucadia Blvd. at Carlsbad Blvd.	20 ppm	6.0	9 ppm	4.20

[1] As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. Presented 1-hour CO concentrations include a background concentration of 5.8 ppm. Eight-hour concentrations are based on a persistence of 0.7 of the 1-hour concentration.

[2]The State 1-hour standard is 20 ppm. The Federal standard is 35 ppm. The most stringent standard is reflected in the Table.

[3]The State 8-hour and Federal 8-hour standard is 9 ppm.

Source: CALINE4 Dispersion Model

Table 5.1-7
Existing General Plan and Proposed Project Land Use Designations[1]

Plan Area	Existing General Plan Designation		Plan Area	Proposed Land Use with Vision Plan	
	Land Use	Daily Trips			Daily Trips
A	T-R Travel Recreation Commercial RMH/T-R Residential Medium High or Travel/Recreation Commercial Travel Commercial	372 860	A	Hotel, Restaurant, & Conference Facility	2,150
B	RMH/T-R Residential Medium High or Travel/Recreation Commercial Travel/Recreation Commercial	732	B	Specialty Retail	240
C	Travel/Recreation Commercial RMH Residential Medium High	608 208	C	Hotel Units	2,160
D, F, G	Travel/Recreation Commercial NC Neighborhood Commercial RMH Residential Medium High	2,320 7,320 352	D	Apartments Live/work Units	144 72
E	T-R Travel/Recreation Commercial	1,160	E	Resort Hotel & Banquet Facilities	1,008 1,800
H	RMH Residential Medium High	176	F	Townhomes (Condos) Specialty Retail Restaurant/Retails	1,024 370 378
I	Travel/Recreation Commercial	1,300	G	Passive Park	15
			H	Hotel Specialty Retail Restaurant	530 480 800
			I	Specialty Retail	640
	Total Trips	15,408		**Total Trips**	15,161

1. Traffic data was based upon ADT counts per the Traffic Impact Analysis provided by RBF Consulting, October 2006.

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